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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,388	05/21/2002	Pedro Ortiz Armua	932.1205	9244

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EXAMINER

RUSSEL, JEFFREY E

ART UNIT	PAPER NUMBER
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1654

DATE MAILED: 04/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/030,388	Applicant(s) ARMUA, PEDRO ORTIZ	
	Examiner Jeffrey E. Russel	Art Unit 1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2002 and 13 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/03/2002</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The Sequence Listing filed August 13, 2002 has been approved.

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 12-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. A "use" is not a statutory class of invention.

3. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The "preferably...", "more preferably...", and "most preferably..." limitations in claim 1 are indefinite because it is not clear if the scope of the claim is to be limited to the preferred embodiments or not. It is suggested that the phrases could be deleted from the claim and made the subject matter of additional dependent claims. The "preferably..." limitation in claim 2 is indefinite because it is not clear if the scope of the claim is to be limited to the preferred embodiment or not. It is suggested that the word "preferably" could be deleted from claim 2 without adversely affecting its scope. The "more preferably..." limitation in claim 4 is indefinite because it is not clear if the scope of the claim is to be limited to the preferred embodiment or not. It is suggested that the phrase could be deleted from the claim and made the subject matter of an additional dependent claim. In claim 7, the use of the phrase "consisting essential [sic] of" in conjunction with a specified amino acid sequence is unclear as to whether variations from the specified sequence are permitted, and if so what types and what number of variations might be permitted. With respect to claims 12-22, it is not clear what constitutes a "use". It is not clear if Applicants are claiming, e.g., a method of use or a product with an intended use limitation. To the extent that Applicants are claiming a method of use, the claims

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are indefinite because they are drawn to a method, but they do not recite any positive process steps.

4. Claims 3-7 and 11 are objected to because of the following informalities: At claim 3, line 2, "a" (second occurrence) should be deleted. At claim 4, line 1, "claims" should be changed to "claim". At claim 4, lines 2 and 4, "a" should be deleted. SEQ ID NOS must be inserted after the amino acid sequences recited in claims 6 and 7. See 37 CFR 1.821(d). At claim 11, line 2, "hydroxyphenyl" and "propionyl" are misspelled. Appropriate correction is required.
5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

For the purposes of this invention, the level of ordinary skill in the art is deemed to be at least that level of skill demonstrated by the patents in the relevant art. *Joy Technologies Inc. v. Quigg*, 14 USPQ2d 1432 (DC DC 1990). One of ordinary skill in the art is held accountable not only for specific teachings of references, but also for inferences which those skilled in the art may reasonably be expected to draw. *In re Hoeschele*, 160 USPQ 809, 811 (CCPA 1969). In addition, one of ordinary skill in the art is motivated by economics to depart from the prior art to reduce costs consistent with desired product properties. *In re Clinton*, 188 USPQ 365, 367 (CCPA 1976); *In re Thompson*, 192 USPQ 275, 277 (CCPA 1976).

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6. Claims 1-9, 12-14, and 17-22 are rejected under 35 U.S.C. 102(a) as being anticipated by the Ozker et al abstract (J. Nuclear Medicine, Vol. 41, No. 5, page 246P). The Ozker et al abstract teaches substance P radiolabeled with ^{99m}Tc through a 1-imino-4-mercaptobutyl linking molecule. The radiolabeled compound of the Ozker et al abstract is used for in vivo receptor imaging, especially for inflammatory diseases or neoplasms. In view of the similarity in structure and uses between the radiolabeled compound of the Ozker et al abstract and Applicant's claimed radiolabeled analogue, the former is deemed inherently to have the same specific binding as is claimed for the latter. Sufficient evidence of similarity is deemed to be present between the radiolabeled compound of the Ozker et al abstract and the instant claimed radiolabeled analogues to shift the burden to Applicant to provide evidence that the instant claimed radiolabeled analogues are unobviously different than those of the Ozker et al abstract. With respect to instant claims 13, 14, and 17-20, an intended use limitation does not impart patentability to product claims where the product is otherwise anticipated by or obvious over the prior art. (See also the above rejection of the "use" claims under 35 U.S.C. 112, second paragraph.)

7. Claims 1-8, 10, 12-14, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Srinivasan (U.S. Patent No. 5,736,120). Srinivasan teaches radiolabeled peptides in which the radiolabel is most preferably ^{99m}Tc . The radiolabel can be linked to a peptide such as Substance P through a DTPA chelate. The radiolabeled peptides are used for diagnostic imaging. See, e.g., column 4, lines 14-15; Examples 3 and 4; and claims 4 and 5. In view of the similarity in structure between the radiolabeled peptide of Srinivasan and Applicant's claimed radiolabeled analogue, the former is deemed inherently to have the same specific binding as is

claimed for the latter. Sufficient evidence of similarity is deemed to be present between the radiolabeled peptide of Srinivasan and the instant claimed radiolabeled analogues to shift the burden to Applicant to provide evidence that the instant claimed radiolabeled analogues are unobviously different than those of Srinivasan. With respect to instant claims 12-14 and 17-22, an intended use limitation does not impart patentability to product claims where the product is otherwise anticipated by or obvious over the prior art. (See also the above rejection of the "use" claims under 35 U.S.C. 112, second paragraph.)

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being obvious over Srinivasan (U.S. Patent No. 5,736,120) as applied against claims 1-8, 10, 12-14, and 17-22 above, and further in view of Fischman et al (U.S. Patent No. 5,792,444). Srinivasan teaches Substance P radiolabeled with ^{99m}Tc using a DTPA linking molecule, but does not teach the use of a 1-imino-4-mercaptobutyl linking molecule. Fischman et al disclose DTPA and iminothiolane (which forms a 1-imino-4-mercaptobutyl linking molecule upon reaction with an amino group) as "groups that are often used to bind metal ion radioisotopes to chemotactic peptides" and as "common chelating groups for linking Tc to peptides". See, e.g., column 14, lines 55-66. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to substitute the iminothiolane linking group of Fischman et al for the DTPA of Srinivasan because the two are disclosed by Fischman et al to be functional equivalents, and the substitution of one functionally equivalent linking group for another is routine in the conjugation arts.

9. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being obvious over Srinivasan (U.S. Patent No. 5,736,120) as applied against claims 1-8, 10, 12-14, and 17-22 above, and further in view of Lai et al (U.S. Patent No. 5,807,742) or Chorev (U.S. Patent No. 5,242,680).

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Srinivasan discloses radiolabeling peptides in general, including Substance P and related peptides, but does not disclose radiolabeling neurokinin A peptide or neurokinin B peptide in particular. Lai et al teach radiolabeled-ligand binding assays in order to determine cells which express neurokinin A receptors. See, e.g., column 6, lines 47-61. Chorev teaches radiolabeling Neurokinin A and neurokinin B for binding and receptor studies. See, e.g., column 4, lines 10-31. It would have been obvious to one of ordinary skill in the art at the time Applicant's invention was made to radiolabel neurokinin A and neurokinin B according to the method of Srinivasan because Srinivasan is not limited to any particular peptides to be labeled, and because radiolabeling neurokinin A and neurokinin B according to the method of Srinivasan would permit binding and receptor studies involving the receptors for neurokinin A and neurokinin B, which types of studies are taught to be useful and desirable by Lai et al and Chorev.

10. Claim 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The prior art of record does not teach or suggest linking ^{99m}Tc to a tachykinin peptide analogue using a 3-(p-Hydroxyphenyl)propionyl molecule. The 3-(p-Hydroxyphenyl)propionyl molecule, i.e. Bolton-Hunter's reagent, is used exclusively in the prior art for (radio)iodination of compounds. See, e.g., Chorev (U.S. Patent No. 5,242,680) at column 1, lines 51-59. There is no motivation for using the molecule to link ^{99m}Tc to a peptide, such as a tachykinin peptide analogue.


The Spradau et al article (Bioconjugate Chemistry, Vol. 9, pages 765-772) is cited as art of interest, teaching Substance P conjugated to rhenium through a linker (see, e.g., Scheme 5, compound 13c).

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The European Patent Application 584,256 is cited as art of interest, being essentially duplicative of the references applied above.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey E. Russel at telephone number (571) 272-0969. The examiner can normally be reached on Monday-Thursday from 8:30 A.M. to 6:00 P.M. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Brenda Brumback can be reached at (571) 272-0961. The fax number for formal communications to be entered into the record is (703) 872-9306; for informal communications such as proposed amendments, the fax number (571) 273-0969 can be used. The telephone number for the Technology Center 1600 receptionist is (571) 272-1600.



Jeffrey E. Russel

Primary Patent Examiner

Art Unit 1654

JRussel

April 12, 2004